GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

UNSTARRED QUESTION NO:658
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Research Projects
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Will the Minister of EARTH SCIENCES be pleased to state:

(a) the details of research projects being undertaken under earth sciences and its likely benefit to common man;

(b) the steps taken/being taken to encourage research and innovation in earth sciences; and

(c) the details of innovation and research projects which have got international acclaim during the last three years and the current year?

Answer

The MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a)−(b) To improve the understanding of the earth system (the atmosphere, ocean, solid earth, biosphere) and their response to the natural and human induced changes, research projects in academic and research institutes in the various areas of Earth System Sciences namely, (i) Atmospheric Science including Climate Science; (ii) Geoscience; (iii) Ocean Science and Resources; (iv) Hydrology and Cryosphere; (v) Earth System Technology, are supported. Activity areas include,
(i) Focused research projects of national importance;
(ii) Building indigenous capability through joint collaborative programs;
(iii) Human resource development through opening of Centers of Excellence, initiation of academic programmes, establishment of Chairs;
(iv) Setting up of specialized labs as national facilities;
(v) National and international collaboration in the field of Earth System Sciences;
(vi) National coordinated projects.

Four Project Appraisal and Monitoring Committees (PAMCs) and a Technology Research Board have been constituted for appraisal, review and monitoring of the various projects for consideration for funding. An Apex committee chaired by Secretary has also been constituted to consider specific proposals recommended by these committees. As of now, 27 projects are funded under the theme of Atmospheric Science including Climate Change; 33 projects under Geosciences; 10 projects under Hydrology & Cryosphere etc. All these initiatives are expected to enhance the skill of the operational weather, climate, ocean state and multi-hazard services incrementally for accruing the societal benefits in terms of minimizing the loss of life and property.
Ocean Technology program aims at developing reliable indigenous technology to address the issues associated with harvesting of non-living and living resources from Ocean, as well as protection of coast, construction of offshore structures etc. The major activities undertaken include; Renewable Energy and Fresh water from the sea, Deep Sea Technology and Ocean Mining, Ocean Acoustics, Marine Sensor Systems & Ocean Electronics, Ocean Science and Technology for Islands, Coastal and Environment Engineering, Ocean Observation Systems.

Polar Science and Cryosphere programme comprises of Antarctic and Arctic research, Himalayan Cryosphere research, and Southern Ocean biogeochemistry. Initiatives under Ocean Survey and Mineral Resources are addressing Delineation of Outer Limits of Continental Shelf, Mapping of the Exclusive Economic Zone of India, Exploration for Polymetallic Nodules and Hydrothermal Sulphide Mineralisation in the Indian Ocean, and Gas Hydrate Studies.

Setting up of a facility for Geochronology at Inter-University Accelerator Centre (IUAC), New Delhi is to develop a community centre for Geochronology, that will permit generating high quality Geochronological data and its characterization. Facility would be capable of dating geologically youngest and old formations/rocks/sediments in the earth history and provide improved and quantitative understanding of the evolution of the Indian lithosphere.

Scientific deep drilling in Koyna Intra-plate Seismic Zone of Maharashtra is aimed at setting up of borehole observatories at depth for directly measuring the in-situ physical properties of the rocks, pore-fluid pressure, hydrological parameters, temperature and other parameters of an intra-plate, active fault zone in the near field of earthquakes - before, during and after their occurrence, leading to a better understanding of the mechanics of faulting, physics of reservoir triggered earthquakes and preparing a predictive model.

(c) Major benefits of R & D Earth Sciences accrued to the nation include

i) Commissioning of Low Temperature Thermal Desalination (LTTD) Plants in Lakshadweep Islands for the supply of fresh water from the sea
ii) Open sea cage farming to the fisherman community

iii) Weather based Agro-meteorological Advisory Services are guiding the farming community to plan their agricultural operations
iv) Potential Fishing Zone Services are guiding the fisherman community to plan for maximizing the fish catch capture
v) International Sea Bed Authority has provided exclusive rights of exploration of polymetallic Sulphide over Central Indian Ridge and south West Indian Ridge and for exploration of polymetallic nodules in Central Indian Ocean Basin.
vi) Facility for Geochronology will support contemporary cutting-edge research in isotope geochemistry and geochronology pertaining to earth, atmospheric, oceanic and planetary sciences at international level.